

Mouse study finds probiotics during pregnancy help moms and babies

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Giving probiotics to pregnant mice can enhance both the immune system and behavior of the mothers and their offspring, according to a new

study led by The Ohio State University Wexner Medical Center and College of Medicine.

"These results suggest that certain probiotics given to mothers during pregnancy can improve their offspring's behavior and may affect the metabolism of common amino acids in our diets. Probiotics may also help counteract the negative effects of prenatal [stress](#)," said study senior author Tamar Gur, MD, Ph.D., endowed director of the Soter Women's Health Research Program and a researcher with Ohio State's Institute for Behavioral Medicine Research and Department of Psychiatry and Behavioral Health.

Study findings are [published](#) in the journal *Brain, Behavior, and Immunity*.

Probiotics are beneficial live microorganisms, such as bacteria, that help support healthy digestive and immune systems. Many studies have attested to the benefits of probiotics, which are considered safe to take during pregnancy.

Researchers led by Jeffrey Galley, Ph.D., first author on the publication, found that a specific probiotic, *Bifidobacterium dentium*, may change how the body processes certain [amino acids](#), such as tryptophan.

During pregnancy, tryptophan helps control inflammation and brain development.

"We have strong evidence this specific probiotic helped reduce stress-related problems in both mothers and their offspring, including helping the babies gain weight and improving their [social behavior](#)," said Gur, who also is an associate professor of psychiatry, neuroscience and obstetrics and gynecology at Ohio State.

Gur's research team has studied how prenatal stress can lead to abnormal [brain development](#) and [behavioral changes](#) in offspring. So far, they've found that stress is linked to changes in brain inflammation and amino acid metabolism, as well as long-term reductions in social behavior and abnormal microbiomes in offspring.

This study enhances their understanding of how gut microbes and [probiotics](#) can influence amino acid metabolism and help with behavior and immune issues related to prenatal stress. The study also highlights the many benefits of this specific probiotic, even without the presence of stress.

"Now, we aim to understand the mechanisms behind these changes and explore ways to prevent or treat these effects," Gur said. "Since prenatal stress is common in many pregnancies, we want to develop methods to reduce its negative effects."

More information: Jeffrey D Galley et al, Gestational administration of *Bifidobacterium dentium* results in intergenerational modulation of inflammatory, metabolic, and social behavior, *Brain, Behavior, and Immunity* (2024). [DOI: 10.1016/j.bbi.2024.08.006](https://doi.org/10.1016/j.bbi.2024.08.006)

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